

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



07 DEC 2004



(43) International Publication Date  
18 December 2003 (18.12.2003)

PCT

(10) International Publication Number  
**WO 03/103833 A1**

(51) International Patent Classification<sup>7</sup>: **B01J 35/02.**  
23/74

Carolus, Matthias, Anna, Maria [NL/NL]; Badhuisweg  
3, NL-1031 CM Amsterdam (NL).

(21) International Application Number: **PCT/EP03/06114**

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, L.C.,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 6 June 2003 (06.06.2003)

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, BE,  
ES, FI, FR, GB, GR, ITU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: English

Published:

— with international search report

(26) Publication Language: English

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(30) Priority Data:  
02253980.3 7 June 2002 (07.06.2002) EP

(71) Applicant (*for all designated States except US*): **SHELL  
INTERNATIONALE RESEARCH MAATSCHAPPIJ  
B.V. [NL/NL]**; Carel van Bylandtlaan 30, NL-2596 IIR  
The Hague (NL).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **HOEK, Arend**  
[NL/NL]; Badhuisweg 3, NL-1031 CM Amsterdam (NL).  
**HUISMAN, Hans, Michiel** [NL/NL]; Carel van By-  
landtlaan 30, NL-2596 IIR The Hague (NL). **MESTERS,**

A1

(54) Title: SHAPED CATALYST PARTICLES FOR HYDROCARBON SYNTHESIS

(57) **Abstract:** Shaped catalyst or catalyst precursor containing a catalytically active component or a precursor therefor, the component selected from elements of Group VIII of the Periodic Table of the Elements, supported on a carrier, which catalyst or catalyst precursor is an elongated shaped particle comprising three protrusions each extending from and attached to a central position, wherein the central position is aligned along the longitudinal axis of the particle, the cross-section of the particle occupying the space encompassed by the outer edges of six circles around a central circle, each of the six circles touching two neighbouring circles whilst three alternating circles are equidistant to the central circle and may be attached to the central circle, minus the space occupied by the three remaining outer circles and including the six interstitial regions. The invention further relates to a process to prepare the catalyst or catalyst precursor from a shapeable dough, to the die-plate used for the preparation of an extruded catalyst or catalyst precursor, to the use of the catalysts, as well as to hydrocarbons prepared by using the catalyst. The invention further relates to a process to obtain fuels and optionally base oils, by hydrogenation, hydroisomerisation and/or hydrocracking of the hydrocarbons prepared by using the catalyst.

WO 03/103833